Commentaries on Viewpoint: Justifying small-\(n\) research in scientifically amazing settings: Challenging the notion that only “big-\(n\)” studies are worthwhile

CONSIDER COST AND FEASIBILITY WHEN CHOOSING SAMPLE SIZE

TO THE EDITOR: I commend the authors for advocating alternatives to the usual convention-bound sample size methods (5). Problems with the conventional methods extend beyond special settings, because in practice researchers can never completely ignore cost and feasibility. Without the threshold myth, doing so is not justified even in theory (1). Choosing a reasonable sample size requires weighing both the gains and drawbacks of larger versus smaller choices, including higher costs, risks to more participants, longer waits for results, and crowding out other investigations. The common strategy of proposing the largest \(n\) that is reasonably feasible is actually better justified than power-based approaches, because it will often approximate a choice that is more cost efficient than any larger \(n\) (3).

The methods of Mudge et al. (4) were proposed for data analysis—using them for sample size planning would require specifying a desired power (and/or Type I error). I believe they are not suitable for either purpose, because most researchers (and NASA) will not be making automatic decisions according to \(P\) value cutoffs and will instead need to evaluate the full evidence that studies produce (1, 2).

Choosing \(n\) to reach a target precision, while ignoring cost and feasibility, would be no more justified than doing so for a target power. Nevertheless, justifying a feasible \(n\) by estimating the anticipated precision is a useful strategy, and the absence of a conventional goal for precision may inhibit arbitrary criticisms of such justifications.

I urge researchers and reviewers to avoid dogmatism about sample size.

REFERENCES

5. Ploutz-Snyder R, Fiedler J, Feiveson AH. Viewpoint: Justifying small-\(n\) research in scientifically amazing settings: Challenging the